

## Lubrication Is First Essential In Car Operation

Oil Should Be of Right Grade and Quantity Has To Be Adequate to the Job in Hand: Hints to Owners

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Automobile owners should do everything to provide thorough and efficient lubrication. Just imagine trying to run the world's work without lubrication. The result would be a complete wreck. Naturally, proper lubrication of an automobile is absolutely necessary. In fact, much of an essential task is to use good judgment in selecting the particular grade for your car.

The grade of oil selected should not be too heavy or too light. The heavier the oil, the more it will accumulate on the pistons, valves and cylinder walls. Too light a grade has much of the carbon extracted and may lack the viscosity necessary for your particular engine.

Manufacturers as a rule are eager to advise motorists as to the proper grade of oil to use in their engines, as their experience with the problem of correct engine lubrication has been gained by years of exhaustive tests.

In breaking in a new car all the parts must be well oiled to start them on the way for the most efficient work. Then the good work once started, should be continued regularly. Some of the best and well known lubricants are put up in sealed containers. These brands are scientifically graded for the particular purpose for which they are prepared.

Thirty-five thousand dollars was lost by a renowned racing driver on account of the lack of oil. The 500-mile race on the Indianapolis Speedway was lost because he neglected to stop for oil. He had been driving his car most consistently up to within the last two laps of two and one-half miles each, leading his nearest competitor by fifteen miles.

On the second turn from the starting point, one of the connecting rod bearings burnt out, broke and was driven through the bottom of the crank case. It could have been changed with a few extra miles on doubtful tires or with a small quantity of water in the cooling system. Without lubrication, the proper operation and in the proper places the automobile is a machine that soon ceases to function, and the damage resulting from the lack of oil is usually extensive.

The experienced motorist never neglects to look over his oil and grease cups every day to be sure that they are filled and operating. When the oil indicator on the dash ceases to show that the oil is being fed—stop! Some indicators are dials with hands which indicate the pressure. If no pressure is indicated then the pump is not working. The feed to the pump is clogged or the outlet from it to the pipe the pressure of which the gauge indicates is broken or leaking. Other indicators show that the oil is feeding by a drip in a glass sightfeed. If no oil drips then it is likely for one of the reasons mentioned in the foregoing that no oil is being fed to the parts that should receive it.

Another type of indicator is in the form of a small rod whose movement up and down or in and out indicates the passage of oil. Others show the level in the crank case. Whatever kind the gauge is, the first thing to do when it ceases to show any further feed is to stop the engine and go carefully over the whole system. First see if there is the required amount of oil in the reservoir. Then see if the pump, provided there is one, is working and receiving a supply of oil from the strainer. Find one of the outlets of the feed and run the engine just long enough to see if the oil is flowing. Go over the gauge to make certain that the fault is not there instead of in the oiling system. Note the exhaust smoke. It should have a slight

## Historical Scenes on Trips To West Point and Jersey

After the Battle of Saratoga, following the surrender of the British army under General Burgoyne, which brought the northern campaign of 1777 to a close in favor of the Continentals, Washington began to erect fortifications along the Hudson River, mainly to guard against further British operations between New York and the Lake George-Lake Champlain region, the great thoroughfare of that time to and from Canada. Across the river at West Point, and also at Fort Montgomery below, strong chains were stretched to prevent hostile ships passing up or down. Garrisons were also established at strategic points, and remained there until independence had been achieved.

In the course of time West Point was selected as the location for the United States Military Academy, where Uncle Sam has been training several generations of officers. There is no more beautiful or commanding location, at least in the northeastern states; and yet it is so near New York City that a single afternoon is sufficient for a leisurely round trip, taking in points of interest on both sides of the river, looking over the military reservation there and possibly catching glimpses of the cadet parade.

The touring bureau of the American Automobile Association suggests making a fairly quick northbound run from New York through Yonkers, Tarrytown and Ossining to Peekskill, following the main road toward Poughkeepsie and Albany, an important branching of roads a few miles north of Peekskill. Leaving the thoroughfare "Post Road" there, and running more nearly west, one soon comes to the river at Garrison station, hemmed in by the "highlands of the Hudson," so that the builders of the railroad were obliged to hew some of the right-of-way through solid rock. A few minutes' ride on the ferryboat from Garrison lands the car at the foot of the long incline leading up to the military reservation, government buildings, parade ground, etc.

Well-built and well-kept roads traverse the grounds at West Point in all the principal directions, and every few turns bring some new point of interest, with now and then a vista of the Hudson itself or the scenic country lying on either side of it. For some years New York State has been either contemplating or working (intermittently) on a river-front boulevard, to run along the escarpment, carved on Crow's Nest Mountain; but appropriations have been under cut and the work is yet incomplete. This makes it inadvisable to continue the present trip up as far as Newburgh, that is still possible by the old road farther back on the mountain, which, however, is very far from comfortable traveling. Ordinarily, it will be advisable, if one wishes to see as much as possible of the river, to start south from West Point, running through Highland Falls and Fort Montgomery, rounding Bear Mountain and continuing past Stony Run, scene of Anthony Wayne's famous Revolutionary exploit, to Haverstraw, from which a considerable choice of roads lead back to New York, either through Nyack or farther back in that beautiful historic country. Going and returning by the route suggested the

bluish tinge when the engine is accelerated. If the tinge does not appear you can be satisfied that the engine is not receiving enough oil. But above all do not run the engine unless you are sure that the oiling system is working. Make it a habit to go over the car periodically. This is the custom of those expert few who always have their cars ready for an emergency. Remember that the neglect to lubricate all the working parts is a "sin of omission."

**Conditions Abroad**  
Reviewed by Mr. Work  
B. G. Work, president of the B. F. Goodrich Rubber Company, just recently returned from his annual inspection of the company's interests

## Twelve Types of Road Surface on Lincoln Way Highway Traversing Continent Measures 3,305 Miles From Coast to Coast

It is 3,305 miles from Forty-second Street and Broadway, New York, to the Golden Gate, overlooking the Pacific, via the Lincoln Highway. Over this great road, which cuts through the heart of the Union, are to be found the various classifications of road types and road construction most familiar to the American public.

Usually the first question of the individual making inquiry concerning the condition of the Lincoln Highway is "What is the road like to-day?" The answer is given in the figures just made public by the Lincoln Highway Association, contained in the following table:

Mileage. Improved. End of 1913..... 3,283 1,598 miles  
End of 1918..... 3,322 2,141 miles  
End of 1919..... 3,323 2,421 miles  
End of 1920..... 3,305 2,583 miles

That the Lincoln Highway Association is doing much in the way of bringing about the actual improvement of the transcontinental route is indicated by the following table showing the classification of types of road construction on the transcontinental route January 1, 1921:

Miles. Concrete..... 422.44 Graded gravel..... 656.56  
Brick..... 215.48 Natural gravel..... 42.10  
Bit macadam..... 401.81 Graded earth..... 725.67  
Macadam..... 257.10 Natural earth..... 136.87  
Asphalt..... 78.00 Sand..... 2.80  
Grass and brush..... 5.00  
Gravel blocks..... 7.10 Total..... 3,305.80

In seven years a total of \$31,284,520 has been spent in the improvement of the Lincoln Highway. In 1920 alone new construction accomplished on the highway ran as follows:

Concrete, 127.5 miles; brick, 7.1 miles; bit macadam, 12.2 miles; macadam, 5 miles; gravel, 187 miles; permanent earth grade, 206.9 miles. Total, 542 miles.

According to present plans the Lincoln Highway Association expects further improvement in the coming year at a cost of approximately \$10,000,000.

**About 20,000 Miles of Roads Built in 1920**  
And This Huge Total Will Probably Be Greatly Exceeded in 1921 Program

Five parallel, transcontinental highways—duplicates of the Lincoln Highway—would represent the highway construction completed in the various states during 1920. Approximately 20,000 miles of new improved roads were finished, according to reports sent in to the travel and transport bureau of the B. F. Goodrich Rubber Company. Estimates from state highway engineers say that half again and possibly double this mileage will be completed during 1921.

Nebraska, Texas and Minnesota were among the leaders in total mileage of new construction. Nebraska built 1,307.5 miles, Texas 976.50 and Minnesota, 911.06. Nearly every state reports mileage under construction almost equal to the total actually finished. Many of the states were unable

to submit figures on highway construction. This year is expected to be the greatest road building year in the history of the country.

Handicaps, such as scarce and high priced materials and labor shortages, will be absent this year. A mild winter, which tended to

lessen the destruction of roads, and an early spring are favorable to the road building program for 1921. With more than \$1,000,000,000 now

available in state and Federal money for highway work, the good roads situation is more favorable than ever before in history.



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One of the final steps in this process of rehabilitation was reached in Detroit on Friday, April 8th.

For months, the banks and interests concerned in the upbuilding of these properties have held ready for this new management, new cash in the amount of \$15,000,000.

To establish clear title to the properties (which has the effect of rendering these funds immediately available upon the discharge of the receivership and the consummation of the reorganization) and to insure the continuance of the present policies, a temporary receivership was consented to in the United States District Court at Detroit on Friday by all of the interests involved.

The friendly and constructive character of the action is indicated by the appointment as receiver of Mr. Ledyard Mitchell who, with Arthur E. M. Barker, has been in active charge of the management of the properties since the reconstruction process began.

In adopting the somewhat unusual policy of giving these facts in detail, this company is actuated by the conviction that the high standing of the Maxwell properties can best be served by sharing with the public the good news of every step of their progress.

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